

Yanhai Yin, Ph.D.
Professor and Chair
Department of Genetics, Development and Cell Biology (GDCB)
Plant Sciences Institute Faculty Scholar
Iowa State University
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EDUCATION

1999-2004: **Postdoctoral research associate**

- Advisor: Professor Joanne Chory
- Howard Hughes Medical Institute for Biological Studies, The Salk Institute, California, USA

1991-1997: **Ph.D. student**

- Advisor: Professor Roger N. Beachy
- Ph.D., Macromolecular and Cellular Structure and Chemistry, May 1997
- The Scripps Research Institute, La Jolla, California

1981-1985: **Undergraduate Student**

- Bachelor of Science, Biology, July 1985
- Sichuan University, Chengdu, China

PROFESSIONAL POSITIONS

2018.7-present: **Professor and Chair**

- Department of Genetics, Development and Cell Biology, Iowa State University, USA

2015.8-present: **Professor**

- Department of Genetics, Development and Cell Biology, Iowa State University, USA

2010.8-2015.8: **Associate Professor**

- Department of Genetics, Development and Cell Biology, Iowa State University, USA

2004.8-2010.8: **Assistant Professor**

- Department of Genetics, Development and Cell Biology, Iowa State University, USA

HONORS AND AWARDS

- NSF CAREER Award, 2006-2012
- Interdepartmental Genetics graduate program Teaching Excellence Award, 2011-2012
- College of Liberal Arts & Sciences (LAS), Iowa State University, Mid-Career Achievement in Research Award, 2009
- Interdepartmental Genetics graduate program Teaching Excellence Award, 2007-2008
- The NRSA Postdoctoral Fellowship, NIGMS 2001-2002
- The NRSA Postdoctoral Fellowship, NIDDK 1999-2000
- Howard Hughes Medical Institute Research Associate Fellow, 1998-1999
- The Rockefeller Foundation Predoctoral Fellowship, 1991-1996

TEACHING AND MENTORING

- Molecular Genetics (GDCB 511, 2005-2019, 50% of teaching)
- Molecular Genetics (Gen 409, 2016-2018, 50% of teaching)
- Transmission Genetics (GDCB 510, 2009, 2011, 2013-2016, 50% of teaching)
- Plant Physiology (BIOL 330, 2006, 2008, 2010, three semesters, 50% of teaching)
- Principle of Biology II (BIOL 212, 2013, 45% teaching)
- Plant Biology Graduate Program Seminars (PLBIO 696, 2012-2014, four semesters, 100% of teaching)
- Served as academic advisor for ~50 undergraduate students
- Served as research advisor for ~20 undergraduate students
- Served as Major Professor or Co-Major Professor for ten graduate students (eight Ph.D.), two postdocs
- Served on Program of Study (POS) committee for more than 80 graduate students
- Trained six high school teachers for research (Summers of 2010, 2011, 2013, 2014, 2017 and 2018)

INSTITUTIONAL SERVICES

- Iowa State University, Faculty Senate, Senator (2017-2018)
- GDCB Executive Committee, Member (2017-2018)
- GDCB Promotion and Tenure Committee, Member (2011-2014; 2016-2018)
- GDCB Honors and Awards Committee, Member (2014-2017)
- Interdepartmental Plant Biology Graduate Program (IPB), Chair (2012-2015)
- Interdepartmental Plant Biology Graduate Program (IPB), Associate Chair (2011-2012)
- GDCB Graduate Affair Committee, Chair (2010-2016)
- GDCB Bioinformatics & Computational Biology Faculty Search Committee, Co-Chair (2013-2014)
- IPB admission committee (2009-2011)
- Genetics Major Committee (2008-2009)
- IPB Curriculum Committee (2006-2009)
- GDCB Curriculum Committee (2005-2009)

SIGNIFICANT PROFESSIONAL ACTIVITIES

- NSF grant review panel in Cellular Dynamics and Function, 2019
- Advisor Committee Member, Arabidopsis Biological Resource Center (ABRC), 2017-2020
- Scientific advisory board member, 30th International Conference on Arabidopsis Research, 2019
- Chair, International Organizing Committee, the 3rd International Brassinosteroid Conference, 2015-2018.
- Editor Board, Frontiers in Plant Science-Plant Evolution and Development, 2013-present.
- Organizing Committee Member, 2nd International Brassinosteroid Conference, May 19-22, 2015.
- Manuscript reviews: Nature, Nature communications, Developmental Cell, PNAS, EMBO Journal, Science Signaling, Current Opinion in Plant Biology, Plant Cell, Plant Journal, Plant Physiology, Molecular Plant, Frontiers in Plant Biology, PLOS Genetics, Plant Cell & Environment, BMC Plant Biology, Integrated Plant Biology, Genetics, PLOS ONE, Genes, Genome & Genetics (G3), PeerJ and Analyst.
- Grant panel and/or ad hoc reviewer for NSF, DOE, USDA, European Research Council, BIO5 Institute, BARD, Austria Science Fund, Israel Science Foundation and University of Wisconsin.
- Panel Member, World Food Prize Global Youth Institute, 2014, 2015, 2016 and 2017.
- Member, The American Association for the Advancement of Science (AAAS).
- Member, American Society of Plant Biologists (ASPB).
- Organized Walter and Helen Parke Loomis Distinguished Lecture and Plant Biology Mini Symposium on “Peptide Hormones and the Receptors” at Iowa State University in 2011.
- Organized Walter and Helen Parke Loomis Distinguished Lecture and Plant Biology Mini Symposium 2010, 2013, and 2016.

MAJOR INVITED PRESENTATIONS (SINCE 2009)

- The crosstalk of brassinosteroid and autophagy pathways in the control of plant growth and stress responses. American Society of Plant Biology (ASPB) Annual Meeting, virtual meeting, selected speaker, July 28, 2020.
- Network-based discovery of brassinosteroid-regulated growth and drought responses. University of Texas Austin, November 11-12, 2019
- Network-based discovery of brassinosteroid-regulated growth and drought responses. South Dakota State University, September 12-13, 2019
- Network-based discovery of brassinosteroid-regulated growth and drought responses. Ohio State University, May 20-21, 2019
- Mechanisms and network for brassinosteroid regulation of plant growth and stress responses, University of California, Riverside, May 23, 2018, invited speaker.
- Crosstalk of brassinosteroid and drought signaling pathways. The 3rd International Brassinosteroid Conference, August 1-4, 2018, San Diego, invited speaker.
- Brassinosteroid signaling and drought responses. The XIX International Botanical Congress (IBC 2017), Shenzhen China, invited speaker July 29, 2017.
- Network and phenomics approaches to study BR-regulated plant growth and stress responses. China Agricultural University, invited speaker, Beijing, August 10, 2017.
- Network-Based Discovery of Brassinosteroid Regulation of Plant Growth and Stress Responses in *Arabidopsis*. International Conference on Arabidopsis Research (ICAR), invited speaker (presented by T. Nolan due to my scheduling conflict), St. Louis, June 2017
- Selective Autophagy of BES1 Mediated by DSK2 Balances Plant Growth and Survival. American Society of Plant Biology (ASPB) Annual Meeting, selected short talk and poster presentation (given by Ph.D. student T. Nolan), Hawaii, June 2017
- Conference on Post-Transcriptional Gene Regulation in Plants, selected talk (given by Ph.D. student T. Nolan), July 2016
- American Society of Plant Biology (ASPB) Annual Meeting, selected talk (given by Ph.D. student T. Nolan), July 2016
- Sichuan Agricultural University, invited speaker, July 2016
- Workshop on plant development and drought stress, invited speaker, November, 2015
- International Conference on Arabidopsis Research (ICAR), poster and short talk presented by T. Nolan, July 2015
- 2nd International Brassinosteroid Conference, invited speaker, May 2015
- Shanghai Center for Plant Stress Biology, Invited speaker, May 2015
- Texas A&M University, Invited speaker, March 2015
- International Conference on Arabidopsis Research (ICAR), selected speaker, July 2014
- Sichuan University, invited speaker, Outstanding Alumni Seminar Series, July 2014
- Plant Phosphorylation Meeting, University of Missouri. Invited speaker, May, 2014
- American Society of Plant Biology (ASPB) Annual Meeting, invited speaker, July 2013
- Plant Phosphorylation Workshop, Keystone, invited speaker, October, 2012
- First International Brassinosteroid Conference, Invited speaker. July 2012
- International Conference on Arabidopsis Research (ICAR), Poster Presentation, July 2012
- Sichuan University, College of Biological Sciences, invited speaker, June 2012.
- Du Pont, Pioneer, Invited speaker, November 2011.
- International Conference on Arabidopsis Research (ICAR), workshop speaker, July 2011
- American Society of Plant Biology (ASPB) Annual Meeting, invited speaker, August 2011
- China Agriculture University, invited speaker, July 2011
- American Society of Plant Biology (ASPB) Annual Meeting, invited speaker, July 2010
- China Agriculture University, Summer Graduate School Instructor, August 2010
- Keystone Meeting “Receptors and Signaling in Plant Development and Biotic Interactions”, invited speaker, March 2010

- International Conference on Arabidopsis Research (ICAR). Poster Presentation. July 2010
- Danforth Plant Science Center, invited speaker, October 2009
- University of Missouri, The Interdisciplinary Plant Group, invited speaker, October 2009
- Fudan University, invited speaker, November 2009
- China Agriculture University, invited speaker, November 2009
- Symposium “Frontiers in Plant Biology”, invited speaker, October 2009
- American Society of Plant Biology (ASPB) Annual Meeting, invited speaker, July 2009

PUBLICATIONS

(h-index : 38 as of June 2020)

(*Corresponding Author)

Nolan TM, Vukašinović N, Liu D, Russinova E, **Yin Y***. 2020. Brassinosteroids: Multidimensional Regulators of Plant Growth, Development, and Stress Responses. **Plant Cell**. 2020 Feb;32(2):295-318. doi: 10.1105/tpc.19.00335.

Xie, Z., T. Nolan, H. Jiang, B. Tang, M. Zhang, Z. Li and **Y. Yin***. 2019. The AP2/ERF Transcription Factor TINY Modulates Brassinosteroid-Regulated Plant Growth and Drought Response in Arabidopsis. **Plant Cell**. 31: 1788-1806. doi:10.1105/tpc.18.00918.

Guo H, **Y Yin** (2019) Measuring protein half-life in Arabidopsis thaliana. **Bio-protocol**, 9(15): e3318. doi:10.21769/BioProtoc.3318.

Bao Y, S Zarecor, D Shah, T Tuel, DA Campbell, AVE Chapman, D Imberti, D Kiekhäfer, H Imberti, T Lübberstedt, **Y Yin**, DS Nettleton, CJ Lawrence-Dill, SA Whitham, L Tang, SH Howell (2019) Assessing plant performance in the Envirotron. **Plant Methods**, 15: 117. doi:10.1186/s13007-019-0504-y.

Jiang H, B Tang, Z Xie, TM Nolan, H Ye, G Song, JW Walley, **Y Yin*** (2019) GSK3-like kinase BIN2 phosphorylates RD26 to potentiate drought signaling in Arabidopsis. **Plant J**. doi:10.1111/tbj.14484. (*Outstanding Original Research Article Prize Winner* selected by the journal editors).

Zhang L, Q Han, J Xiong, T Zheng, J Han, H Zhou, H Lin, **Y Yin**, D Zhang (2019) Sumoylation of BRI1-EMS-SUPPRESSOR 1 (BES1) by the SUMO E3 ligase SIZ1 negatively regulates brassinosteroid signaling in Arabidopsis thaliana. **Plant Cell Physiol**, 60(10): 2282-2292. doi:10.1093/pcp/pcz125.

Xie, Z., Nolan, T. M, Jiang, H. and **Yin, Y***. 2019. AP2/ERF transcription factor regulatory networks in hormone and abiotic stress responses in Arabidopsis. **Frontiers in Plant Science**. 10: 228. doi:10.3389/fpls.2019.00228.

P Wang, TM Nolan, **Y Yin**, DC Bassham. 2019. Identification of transcription factors that regulate ATG8 expression and autophagy in Arabidopsis. **Autophagy**. doi:10.1080/15548627.2019.1598753.

Hansen RL, Guo H, **Yin Y**, Lee, YJ. 2018. FERONIA mutation induces high levels of chloroplast-localized Arabidopsides which are involved in root growth. **The Plant Journal**. 97(2): 341-351.

Guo, H*, T. Nolan, Z. Xie, G. Song, J. Walley and **Yin Y***. 2018. FERONIA Receptor Kinase Contributes to Plant Immunity by Suppressing Jasmonic Acid Signaling in Arabidopsis thaliana. **Current Biology**. 28: 3316-3324.

Tan W, D Zhang, H Zhou, T Zheng, **Y Yin** , H Lin (2018) Transcription factor HAT1 is a substrate of SnRK2.3 kinase and negatively regulates ABA synthesis and signaling in arabidopsis responding to drought. **PLoS Genet**, 14(4): e1007336.

Liang T, Mei S, Shi, Yang Y, Peng Y, Ma L, Wang F, Li X, Huang X, **Yin Y**, Liu H. 2018. UVR8 Interacts with BES1 and BIM1 to Regulate Transcription and Photomorphogenesis in Arabidopsis. **Dev. Cell**. 44: 512-523.

Nolan, T.M., Brennan, B., Yang, M., Chen, J., Zhang, M., Li, Z., Wang, X., Bassham, D., Walley, J. and **Yin Y***. 2017. Selective Autophagy of BES1 Mediated by DSK2 Balances Plant Growth and Survival. **Dev. Cell**. 41: 33-46.

Ye, H., Liu, S., Tang, B., Chen, J., Xie, Z., Nolan, T.M., Jiang, H., Guo, H., Lin, H.-Y., Li, L., Wang, Y., Tong, H., Zhang, M., Li, Z., Chu, C., Aluru, M., Aluru, S., Schnable, P. S. S., **Yin, Y***. 2017. RD26 mediates crosstalk between drought and brassinosteroid signaling pathway. **Nature Communications**. 8:14753.

Chen, J., Nolan, T.M., Ye, H., Zhang, M., Tong, H., Xin, P., Chu, J., Chu, C., Li, Z., **Yin, Y***. 2017. Arabidopsis WRKY46, WRKY54 and WRKY70 Transcription Factors Are Involved in Brassinosteroid-Regulated Plant Growth and Drought Response. **Plant Cell**. 29: 1425-1439.

Chen J, **Yin Y***. (2017) WRKY transcription factors are involved in brassinosteroid signaling and mediate the crosstalk between plant growth and drought tolerance. **Plant Signal Behav**. 2017 12: e1365212. doi: 10.1080/15592324.2017.1365212.

Yang, M., Li, C., Cai, Z., Hu, Y., **Nolan, T.**, Yu, F., **Yin, Y.**, Xie, Q., Tang, G., Wang, X. 2017. SINAT E3 ligases control the light-mediated stability of the brassinosteroid-activated transcription factor BES1 in Arabidopsis. **Dev. Cell**. 41: 47-58.

Nolan, T. M., Chen, J. and **Yin, Y***. 2017. Cross-talk of Brassinosteroid Signaling in Controlling Growth and Stress Responses. **Biochem. J**. 474: 2641-2661.

Chockalingam, S. P., Aluru, M., Guo, H., **Yin, Y.**, Aluru, S. 2017. Reverse Engineering Gene Networks: A Comparative Study at Genome-scale. **The 8th ACM International Conference**. DOI: 10.1145/3107411.3107428.

Jiang, H., Wang X., Nolan, T.M., **Yin, Y.** Aluru M.R., L. Dong. (2017) Automated microfluidic plant chips-based plant phenotyping system. **NEMS**: 756-760.

Hu S, Sanchez DL, Wang C, Lipka AE, **Yin Y**, Gardner CAC, Lübberstedt T. 2017. Brassinosteroid and gibberellin control seedling traits in maize (Zea mays L.). **Plant Sci**. 263:132-141. doi: 10.1016/j.plantsci.2017.07.011.

Hu S, Wang C, Sanchez DL, Lipka AE, Liu P, **Yin Y**, Blanco M, Lübberstedt T. 2017. Gibberellin promote brassinosteroid action and both increase heterosis for plant height in maize (Zea mays L.). **Front Plant Sci**. 8:1039. doi: 10.3389/fpls.2017.01039.

- Y Feng, **Y Yin**, S Fei. 2017. BdVRN1 expression confers flowering competency and is negatively correlated with freezing tolerance in *Brachypodium distachyon*. **Frontiers in Plant Science** 8, 1107
- Nolan, T., Liu, S., Guo, H., Li, L., Schnable, S. & **Yin, Y***. 2017. Identification of Brassinosteroid Target Genes by Chromatin Immunoprecipitation Followed by High-throughput Sequencing (ChIP-seq) and RNA-seq. **Method in Molecular Biology**. 1564: 63-79.
- Deng XG, Zhu T, Peng XJ, Xi DH, Guo H, **Yin Y**, Zhang DW, Lin HH. 2016. Role of brassinosteroid signaling in modulating Tobacco mosaic virus resistance in *Nicotiana benthamiana*. **Sci Rep**. 6:20579. doi: 10.1038/srep20579.
- Kir G, Ye H, Nelissen H, Neelakandan AK, Kusnandar AS, Luo A, Inze D, Sylvester A, **Yin Y**, Becraft PW. 2015. RNAi knockdown of BRI1 in maize (*Zea mays*) reveals novel functions for brassinosteroid signaling in controlling plant architecture. **Plant Physiol**. 169: 826-839.
- Wang, X., Chen J., Xie, Z., Liu, S., Nolan, T., Ye, H., Zhang, M., Guo, H., Schnable, P.S., Li, Z. and **Yin, Y***. 2014. Histone Lysine Methyltransferase SDG8 Is Involved in Brassinosteroid Regulated Gene Expression in *Arabidopsis thaliana*. **Molecular Plant**. 7: 1303-1315.
- Tong, H., Xiao, Y., Liu, D., Gao, S., Liu, L., **Yin Y.**, Jin, Y. Qian, Q., and Chu, C. 2014. Brassinosteroid Regulates cell elongation by modulating gibberellin metabolism in rice. **Plant Cell**. 26:4376-93.
- Zhang, D., Ye, H, Guo, H., Johnson, A., Zhang, M., Lin, H, and **Yin, Y***. 2014. Transcription Factor HAT1 is Phosphorylated by BIN2 Kinase and Mediates Brassinosteroid Repressed Gene Expression in *Arabidopsis*. **Plant J**. 77: 59-70.
- Zhang D, Ye H, Guo H, Johnson A, Lin H, **Yin Y***. 2014. Transcription factors involved in brassinosteroid repressed gene expression and their regulation by BIN2 kinase. **Plant Signal Behav**. 2014; 9: e27849.
- Guo H, Li L, Aluru M, Aluru S, **Yin Y***. 2013. Mechanisms and networks for brassinosteroid regulated gene expression. **Curr Opin Plant Biol**. 16:545-53.
- Ye, H., Li, L., Guo, H., **Yin Y***. 2012. MYBL2 is a substrate of GSK3-like kinase BIN2 and acts as a corepressor of BES1 in brassinosteroid signaling pathway in *Arabidopsis*. **Proc Natl Acad Sci U S A**. 109: 20142-20147.
- Tong, H., Liu, L., Jin, Y., Du, L., **Yin Y.**, Qian, Q., Zhu, L. and Chu, C. 2012. DWARF AND LOW-TILLERING Acts as a Direct Downstream Target of a GSK3/SHAGGY-Like Kinase to Mediate Brassinosteroid Responses in Rice. **Plant Cell**. 24: 2562-2577.
- Yu, X., Li, L., Zola, J., Aluru, M., Ye, H., Foudree, A., Guo, H., Anderson, S., Aluru, S., Liu, P., Rodermel, S., and **Yin, Y***. 2011. A Brassinosteroid transcriptional network revealed by genome-wide identification of BES1 target genes in *Arabidopsis thaliana*. **Plant J**. 65: 634-646.
- Li, L., Ye, H, Guo, H., **Yin Y***. 2010. *Arabidopsis* IWS1 interacts with transcription factor BES1 and is involved in Brassinosteroid regulated gene expression. **Proc Natl Acad Sci U S A**. 107:3918-3923.
- Ye, Q., Zhu, W., Li, L., **Yin, Y.**, Ma, H., Wang, X. 2010. Brassinosteroids control male fertility by regulating the expression of key genes involved in *Arabidopsis* anther and pollen development. **Proc Natl Acad Sci USA** 107: 6100-6105.

Guo, H., Li, L., Ye, H., Yu, X., Algreen, A., **Yin Y***. 2009. Three related Receptor-Like Kinases are required for optimal cell elongation in *Arabidopsis thaliana*. **Proc Natl Acad Sci U S A**. 106: 7648-7653.

Li, L., Yu, X., Thompson, A, Guo, M. Yoshida, S., Asami, T., Chory, J, **Yin Y***. 2009. *Arabidopsis* MYB30 is a direct target of BES1 and cooperates with BES1 to regulate brassinosteroid target gene expression. **Plant J**. 58: 275-286.

Salas Fernandez, M.G., Becraft, P.W., **Yin, Y.**, Lübberstedt, T. 2009. From dwarves to giants? Plant height manipulation for biomass yield (**Review**). **Trend Plant Sci**. 14: 454-461.

Tong, H., Jin, Y., Liu, W., Li, F., **Yin Y.**, Qian, Q., Zhu, L. and Chu, C. 2009. Dwarf and low-tillering, a new member of the GRAS family, plays positive roles in brassinosteroid signaling in rice. **Plant J**. 58: 803-816

Srivastava, R., Liu, J., Guo, H., **Yin, Y.**, Howell, S. 2009. Regulation and processing of a plant peptide hormone, AtRALF23, in *Arabidopsis*. **Plant J**. 59: 930-939.

Yu, X., Li, L., Guo, M., Chory, J, **Yin Y***. 2008. Modulation of brassinosteroid-regulated gene expression by Jumonji domain-containing proteins ELF6 and REF6 in *Arabidopsis*. **Proc Natl Acad Sci U S A**. 105: 7618-7623.

Yin Y., Chory, J., Baulcombe D. 2005. RNAi in transgenic plants. Current Protoc Mol Bio. Chapter 26: unit 26.6.

Yin, Y. Vafeados, D., Tao, Y., Yoshida, S., Asami, T., Chory, J. 2005. A new class of transcription factors mediates brassinosteroid-regulated gene expression in *Arabidopsis*. **Cell** 120:249-259.

Caño-Delgado, A. *, **Yin , Y. ***, Yu. C. *, Vafeados, D., Mora-García, S., Cheng, J-C., Nam, K.H.², Li, J. and Chory, J. 2004. BRL1 and BRL3 are novel brassinosteroid receptors that function in vascular differentiation in *Arabidopsis*. **Development** 131: 5341-5351. (*co-first author).

Russinova, E., Borst, J.W., Kwaaitaa, I M., Cano-Delgado, A., **Yin, Y.**, Chory, J., de Vries, S.C. 2004. Heterodimerization and endocytosis of *Arabidopsis* brassinosteroid receptors BRI1 and AtSERK3 (BAK1). **Plant Cell** 16:3216-3229.

Mora-Garcia, S., Vert, G., **Yin, Y.**, Caño -Delgado, A., Cheong, H., and Chory, J. 2004. Nuclear protein phosphatases with Kelch-repeat domains modulate the response to brassinosteroids in *Arabidopsis*. **Genes & Development** 18: 448-460.

Yin, Y., Wang , Z-Y., Mora-Garcia, S., Li, J., Yoshida, S., Asami, T., and Chory, J. 2002. BES1 accumulates in the nucleus in response to brassinosteroids to regulate gene expression and promotes stem elongation. **Cell** 109: 181-191.

Yin, Y., Cheong, H., Friedrichsen, D., Zhao, Y., Hu, J., Mora-Garcia, S., and Chory, J. 2002. A crucial role for putative *Arabidopsis* topoisomerase VI in plant growth and development. **Proc Natl Acad Sci U S A** 99: 10191-10196.

Yin, Y., Zhu, Q., Dai, S., Lamb, C. and Beachy, R.N. 1997. RF2a, a bZIP transcriptional activator of the phloem-specific rice tungro bacilliform virus promoter, functions in vascular development. **EMBO J**. 16: 5247-5259.

Yin, Y., Chen, L. and Beachy, R.N. 1997. Promoter elements required for the phloem-specific expression from the RTBV promoter in rice. **Plant J.** 12: 1179-1188.

Yin, Y. and Beachy R.N. 1995. The regulatory regions of the rice tungro bacilliform virus promoter and interacting nuclear factors in rice (*Oryza sativa* L.). **Plant J.** 7: 969-980.

RESEARCH FUNDING

EXTERNAL FUNDING

1. 1R01GM120316-01A1 Crosstalk between Brassinosteroid and autophagy pathways in the regulation of plant growth and stress responses

NIH (NIGMS)

2017.1.1-2020.12.31 (**Active**)

Role: **Principal Investigator (PI, 40%)**, with Bassham and Walley as MPIs.

2. MCB 1818160 Network-Based Discovery of Brassinosteroid Regulation of Plant Growth and Stress Responses in Arabidopsis

NSF

2018.8.15-2021.7.31 (**active**)

Role: **PI (50%)**, Co-PI, Walley

3. IOS 1257631 Signaling Network for Brassinosteroid-Regulated Gene Expression in Arabidopsis

NSF

2013.2.1-2018.1.31 (Awarded and Completed)

Role: **PI (70%)**, with S Aluru and M. Aluru as Co-PIs

4. IOS 1122166 Mechanisms of Plant Steroid Hormone Regulated Gene Expression in Arabidopsis

NSF

2012-2013 (Awarded and Completed)

Role: **PI (100%)**

5. IOS 0546503 CAREER: Novel Signaling Components For Plant Steroid Regulated Gene Expression In Arabidopsis

NSF

2006-2012 (Awarded and Completed)

Role: **Principal Investigator (PI, 100%)**

6. Discovery of Novel genes in Creeping Bentgrass by High Throughput Gene Silencing with Specialized cDNA libraries

Consortium of Plant Biotechnology (CPBR)

2011-2014 (Awarded and Completed)

Role: **Co-PI (20%)**, PI: Shuizhang Fei

INTERNAL FUNDING:

1. Network analysis of Brassinosteroid regulation of plant growth and stress responses by genetics, genomics and predictive phenomics

Iowa State University Plant Sciences Institute (PSI) Scholar

2015-2021 (Active)

Role: PI (100%)

2. Structural, Metabolic Profiling and Genomic Approaches to Understand Plant Growth and Stress Responses

Signature Research Initiatives, College of Liberal Arts and Sciences (LAS), Iowa State University (ISU)

2014-2017 (Awarded and Completed)

Role: PI, 40% contribution, Co-PIs: Young-Jin Lee and Edward Yu

3. TALEN-Innovative Genome Editing of Maize and Soybean

Iowa State University BioEconomy Initiative

2013-2015 (Awarded and Completed)

Role: Co-PI, 10% contribution (PI: Martin Spalding, other 4 Co-PIs)

4. **Presidential Initiative: ISU Crop Bioengineering Consortium (CBC)**

2013-2016 (Awarded and Completed)

Role: Senior Investigator 5% contribution (PI: Martin Spalding)

5. Phase II: Imaging of growing plants and computational modeling of plant growth and development

Plant Sciences Institute (PSI), Iowa State University

2011-2014 (Awarded and Completed)

Role: Collaborator, 10% contribution (PI Diane Bassham)

6. Novel Genomic and Computational Approaches to Dissect Plant Drought and Brassinosteroid Signaling Crosstalk

Plant Sciences Institute (PSI), Iowa State University

2012-2014 (Awarded and Completed)

Role: PI, 65% contribution, with S Aluru and M. Aluru as Co-PIs

7. Brassinosteroid Regulation of Yield and Biomass Production in Maize.

Plant Sciences Institute (PSI), Iowa State University

2009-2011

Role: Co-PI, 30% contribution (PI: Phil Becraft)

8. High Throughput Gene Silencing by Transformation of Specialized Inverted Repeat cDNA Libraries in *Brachypodium distachyon*

Plant Sciences Institute (PSI), Iowa State University

2008-2010 (Awarded and Completed)

Role: Co-PI, 20% contribution (PI Shuizhang Fei, Horticulture ISU)

9. HERKULES pathway in crop plants

ISURF (Iowa State University Research Foundation)

2009-2010 (Awarded and Completed)

Role: PI, 100% contribution

10. Mechanisms of Brassinosteroid Signal Transduction in *Brachypodium distachyon*

Plant Sciences Institute (PSI), Iowa State University

2007-2008 (Awarded and Completed)

Role: PI, 100% contribution